



## STATE OF MONTANA

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OF THE

## Department of Public Health

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## MONTANA STATE BOARD OF HEALTH.

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HELENA, MONTANA.

Published Monthly at Helena, by the State Board of Health.

"The science of disease prevention, if properly applied, can add fifteen years to the present average length of human life."—Prof. Irving Fisher, Yale.

This Bulletin will be mailed monthly to any person in Montana upon request mailed to the Secretary of the State Board of Health at Helena.

INDEPENDENT PUBLISHING CO.  
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At a meeting of the State Board of Health held October 18th, 1915, the following regulation was adopted:

"All meat or meat products containing artificial coloring matter, which is sold or offered for sale in this State, must be labeled 'Artificially Colored.' This label must be placed upon each package sold. Harmless coloring matter may be used in casings, provided, the color is not allowed to penetrate into the meat and each package of meat containing casings so colored, must be labeled 'Artificially colored.'"

At the same meeting the following resolution was adopted:

"That, whereas a communication has been received from the California State Board of Health stating that at the present time there are eighteen cases of leprosy being cared for at various hospitals at very great expense to the Counties; and,

"Whereas, if a case of leprosy should be found in the State of Montana, the expense would have to be borne by the County in which such case occurred, and that none of the counties at the present time are prepared to handle such cases; and,

"Whereas, nearly all the cases of leprosy occurring in this Country are of foreign importation;

"Therefore be it resolved, that the care and quarantine of lepers should properly be placed in the hands of the Federal Government, and that the Federal Government should be urged to take steps for the establishment of a national leprosorium, or national leprosaria for the quarantine and care of all cases of leprosy occurring in this country."

The score cards of Joe Shinnizer, restaurant keeper at Forsyth, and George Herr, restaurant keeper at Roundup, were then presented to the Board, also the report of the local health officer on these two restaurants. These score cards report that the restaurants were in a grossly insanitary condition, and as these parties have been notified to appear before the State Board of Health to show cause, if any, why their licenses should not be revoked, it was moved, seconded and passed that the restaurant licenses of the afore-said Joe Shinnizer of Forsyth, and George Herr of Roundup be revoked.

### DRUG INSPECTION.

At a meeting of the State Board of Health, held October 18th, 1915, the following resolution was passed:

“RESOLVED, that the members of the State Board of Pharmacy, the Secretary of the State Board of Health and the Drug Analyst are named as an Advisory Board to the State Board of Health in matters pertaining to the enforcement of the Drug law and the Rules and Regulations of the State Board of Health made in conformity therewith.”

Nearly all of the members of the Advisory Board are registered pharmacists, and with the exception of two are engaged in the drug business in this State. The State Board of Health by its action in creating such a Board, has given the druggists of the State an opportunity to clean house without any of the “fuss, feathers and foolishness” so often accompanying the enforcement of the Food and Drug Law.

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### NEW EVIDENCE CONCERNING THE DISPERSAL OF THE HOUSE FLY.

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Contribution From the Montana State Board of Entomology.  
R. R. Parker.

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During the season of 1915 the State Board of Entomology continued the investigations commenced in 1914 on house fly conditions in Montana. The purpose of this work is the accumulation of data which will place house fly control within the State on a sane and practical basis. The studies of 1914 were undertaken to determine the seasonal history of the house fly, its breeding places and habits, what other flies were of possible importance as disease agents or carriers and those economic conditions which must be controlled in order to successfully combat these insect enemies of man. A brief summary of the results has appeared in the “First Biennial Report” of the Board. The investigation during the past summer had to do with house fly dispersion under city conditions and some incidental work on control; the former part is considered in this article.

Up to the present year several investigations have been conducted for the purpose of securing information concern-

ing the flight of the house fly and its possible limits. The results, however, have been very indefinite as to the actual limits of flight, and it is also to be noted that the number of flies represented in all these experiments total less than fifty thousand, the largest number used in any one experiment being twenty-five thousand. But when we consider that house fly dispersion means the possible spread of flies breeding out at any given breeding area, large or small, it is at once evident that we are concerned with a period of time equivalent to the average life of the fly and with the number of flies which breed out during this interval. Taking the average length of life as from three to four weeks, it is apparent that the numbers of flies mentioned above would represent but a small portion of those which might emerge from even a small manure pile and that while the results obtained would be relatively correct yet they can by no means be considered as final. Perhaps the general consensus of opinion resulting from such observations as pertain to dispersion under city conditions can best be summed up by the statement of Hine, "That the distance flies may travel to reach dwellings is controlled by circumstances. Almost any reasonable distance may be covered by a fly under compulsion to reach food or shelter. When these are close at hand the insect is not compelled to go far and, consequently does not do so." To show the inadvisability of holding to this opinion it is only necessary in view of the summer's results to indicate why the small numbers of flies used in previous experiments constitute a weak point. From our viewpoint flies are considered as spreading outward from a given center, the breeding place. Naturally flies are more abundant at points in relatively close proximity, because, even though they might migrate from this zone, their numbers are maintained by the continual emergence of adults. But as they spread outward they must, of necessity, become constantly more and more scattered and their capture increasingly difficult until a point is finally reached where the chances of their recapture becomes reduced to infinity. But this point is extended further and further with each increase of the number of flies emerging during a given period, the length of which is limited to the average length of life. Consequently we are justified in assuming that



experiments dealing with comparatively small numbers are not indicative of finality. With these points in mind and realizing that, for the most part, the conditions in all Montana towns and cities are essentially similar though perhaps differing considerably from those concerned in the experiment mentioned above, the headquarters for the season's observations were located at Miles City which afforded the combination of conditions best suited to the work, namely, abundance of flies, lack of intensively applied control measures and representative size.

It is only possible to give a comparatively brief summary of the work in this paper. A total of 387,877 marked flies were released from four release stations during a period of 35 days. Two of these release stations were situated on the west side of the city (the sales yards and the city dump), one in the center of the city and one on the east side. Of the marked flies 1056 were recaptured at 78 recapture stations, so located that every part of the city was under observation. Marked flies from the sales yards were recaptured at sixty-two stations out of a possible sixty-nine. This figure was higher than that for other release stations due to the fact that a much larger number, 248,140 flies, were released from the sales yards. However, the figures and localities for all release points were such as to show that flies from each one were distributed to every part of the city. Also, flies were not only captured within Miles City, but it is significant that marked flies from all release points were recaptured at the State Industrial School, which is seven hundred yards beyond the eastern limits of the city and the farthest point at which recaptures were attempted. Flies from the city dump and sales yards not only crossed the city but also the seven hundred yards of open country intervening, in order to reach this point, a total of 3,500 yards (nearly two miles) and 3,070 yards respectively. The longest radius at which flies were recaptured within the city was 2,333 yards (about one and one-third miles) which was the most distant station within the city from any release point.

The investigations, however, were not confined to numbers and locality alone, but also concerned the factors which influence dispersion, that is, those factors which control the direction of flight and the relative abundance in different

localities. Wind, temperature, state of weather, etc., are among the factors which have been previously suggested and which under certain conditions and circumstances they unquestionably play their part. They assume less importance when dispersion is considered for long periods of time, unless some special locality offers unusual climatological conditions. A much more practical view point is obtained when we consider the movements of flies to be determined by their reactions to their surroundings; that is, by external stimuli. A discussion of this point is necessarily highly involved and concerns stimuli which cause movements, those which cause inactivity and the conditions under which either kind is dominant. It is sufficient for our purpose to indicate that movements and consequent dispersion are, in the main, **dependent on the stimuli odors received from feeding areas and breeding areas**, a statement which is substantiated by the summer's results.

The results above stated indicate the following points of practical significance under city conditions in Montana: (1) That flies from a given breeding area may spread over a territory within a city of at least five square miles, (this is based on the longest radius found within city limits and within which it was found that flies were distributed to all parts), (2) that the actual limit of dispersion within cities may be considerably greater than this, (the number of flies recaptured at the State Industrial School indicates that flies may be abundant even at distances of nearly two miles from their breeding place; that is, that they may spread over a territory of twelve square miles), (3) that flies by no means remain close to their breeding grounds even when food and "shelter" are abundant, but that they lead an extremely migratory existence and will not only cross a city or considerable portions thereof, but will leave it and fly across open country to points some distance beyond; (4) that conditions within a city which are favorable to fly breeding are of importance not only to the residents, but to farmers and others in its vicinity; (5) that, even in a city of considerable size, every person who permits conditions favorable to fly breeding to exist on his premises is maintaining a nuisance which is of actual or potential concern to every other person within city limits (this is not only because of the possible migra-

tion of flies to any given locality, but also because flies are naturally attracted to stores, dairies and other sources of food supply where they may contaminate food); (6) that the importance of general co-operation in order to secure successful results in control work is strongly emphasized (the cleaning up of a few places here and there has little value); (7) that fly control measures, intensively applied, are far-reaching in their effectiveness as a means to help secure general sanitary conditions, both from educational and practical viewpoints; (8) that it is highly necessary to control these conditions which make any locality (feeding or breeding areas) attractive to flies (as indicated in the "First Biennial Report" of the Board the three biggest problems of fly control in Montana are the proper care and disposal of garbage, the proper care and disposal of manure and the elimination of the open privy.)

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### SUGGESTIONS TO HEALTH OFFICERS.

Become conversant with the state laws. The health officer must know just what he is empowered to do before he can properly perform his duties, and the powers of the municipality are originally derived from the state.

Become conversant with the ordinances of your own town or county. Be so familiar with them that you may know just how far you may act under them and that you may be able to point out new provisions which will make your work more effective.

Remember that you are holding an office of public responsibility—that you are the servant of the entire people—and that in showing favoritism you are violating the trust imposed upon you.

Do not ignore violations of the ordinances, so far as they affect your work. When a health ordinance has been violated with impunity, the difficulty in the enforcement of the ordinance becomes much greater.

In the investigation of complaints of unsanitary conditions remember that many complaints arise from petty jealousies and animosities. Such personal feeling should invariably be borne in mind and should have no effect on the fairness of your decisions. The habitual complainer is a sore trial to the health officer, but his legitimate complaints cannot be ignored.



Do not threaten drastic action unless you are ready and able to carry it out. Administration of public health affairs on a basis of "bluff" will soon show its weak spots.

Many businesses which in themselves are legitimate and which are not in themselves nuisances, become such when improperly conducted. The unsanitary conditions and those constituting the nuisance may frequently be abated without abolishing the business or institution.

All citizens are given certain inalienable rights which must be borne in mind, but neither the Constitution nor the law gives to any man the right to follow the dictates of his own desires to the danger or injury of the public.

Under no circumstances permit yourself to be influenced by commercial or financial arguments to conceal the truth as to the public health conditions of your community from the people. The denial of the existence of smallpox in a community will not prevent the spread of the disease. Frankness on the part of a health officer is one of the greatest safeguards of the public health. Withholding the truth, except under the gravest and most unusual circumstances, is a violation of your trust.

If you are the legally appointed or elected health officer and the ordinances place upon you certain responsibilities and give you certain powers, be health officer in fact as well as in name, remembering that for your errors and your faults no one will care to share the censure and the blame.

Be firm without being tyrannical. Be reasonable without being lax. Be courteous without weakening your administration. Play no favorites.—Wisconsin Health Bulletin.

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Jean longed for a kitten. When illness made it necessary for Jean to go to a hospital, her mother said: "I'll make a bargain with you, Jean. If you will be a brave little girl about your operation, you shall have the nicest kitten I can find.

Jean took the ether, but later, as she came out from under the anesthetic she realized how very wretched she felt. The nurse leaned over to catch the first spoken word.

"What a bum way to get a cat!" moaned the child.



The years back of us are full of voices—voices eloquent and pathetic. You who have lived long, have stood over the grave of many an early dream. Success, when it came, was not what you thought it would be, and even success has often been denied you. You have watched by the couch of many a hope and seen it fail and die. You have buried many a bright expectation, and laid the memorial wreath over many a joy. When alone by yourself, at times, you close your eyes and think, these memories become oppressive. Withered garlands are there, and broken rings, and vases once fragrant with flowers, and the white faces of those that sleep.—Rev. W. H. H. Murray.

# LABORATORY REPORT FOR OCTOBER, 1915.

	Passed	Not Passed	Unofficial	Total
Cider vinegar .....	1	....	....	1
Spices and flavoring for sausage.....	1	....	....	1
Preserving compound .....	1	....	....	1
Cream .....	....	....	3	3
Lard .....	....	....	1	1
Drugs—				
Lime water .....	10	5	....	15
Tincture of Iodine .....	9	8	....	17
Tincture of Iron .....	11	5	....	16
Hydrochloric Acid (dilute) .....	1	....	....	1
Alcohol .....	1	2	....	3
Water .....	....	....	....	71
Total .....	35	20	4	130

Seventy-one samples of water have been examined in the chemical and bacteriological laboratories. These samples were shipped from the following cities and towns: Belgrade, Belt, Big Timber, Bozeman, Chinook, Columbus, Glendive, Helena, Highwood, Joliet, Kalispell, Livingston, Logan, Milledred, Poplar, Saco, and Sidney.

One sample of vinegar was examined for its acidity. This sample was found to be above the standard.

One sample of spices and flavoring for sausage was examined. This sample complied with the standard.

One sample of preserving compound was examined. This sample complied with the standard.

Three samples of cream were submitted for analysis. These samples are classed as unofficial because of the condition of the seals or because the contents were lost in transit, or on account of the sample submitted.

One sample of lard was examined for informational purposes.

Fifty-three samples of drugs were examined. Of this number fifteen were lime water, of which ten were passed and five not passed.

Seventeen were tincture of iodine, of which nine were passed and eight could not be passed.

Sixteen were tincture of iron, of which eleven were passed and five were not passed.

One was a sample of dilute hydrochloric acid which passed. Three were samples of alcohol. Two of these samples could not be passed but the third complied with the standard.

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### SAFETY FOR RESTAURANT PATRONS.

The New York City Board of Health is enforcing an order against employing waiters and cooks in hotels or restaurants who are suffering from infectious diseases. It is reported that more than 100,000 persons in that city's 4,500 restaurants and hotels are affected by the new regulation. A staff of seventeen doctors assisted by a corps of nurses is busy making a physical examination of those who are applicants for certificates to permit them to prepare or handle food for the public. The doctor in charge says that scores of cooks and waiters have been found to be menaces to the health of restaurant patrons.

It is reasonable to assume that conditions in New York City are much the same as in other places. The number of those who are a menace might be greater in proportion to all employed than it would be in Chicago, San Francisco or Indianapolis, but it is not likely that the average difference would be striking. If scores of those examined in New York are found to be a source of danger to those they serve, it is good ground for assuming that danger exists in every community where there is no physical examination and certificate of health required of those who prepare and handle the food served in public places.

The importance of the menace may be judged from the fact that many of the high-class places in Indianapolis and other cities insist of their own accord on periodical physical examination at the expense of the proprietors. It is a satisfaction to realize that such safety is accorded to patrons of the best places but like protection should be extended to all. There should be no town or city in the country in which something similar to the New York health regulations is not rigidly enforced—Monthly Bulletin Indiana State Board of Health.



## DIRTY HANDS AND SICKNESS.

One of the first steps which indicate the rise of the individual to a higher standard of living is the practice of keeping the hands clean. Recent investigation shows that typhoid fever is very likely to be transmitted by dirty hands. It should be remembered that a good many well people are what is known as typhoid carriers, that is, the typhoid bacilli live with them and appear in their excretions, although these bacilli no longer make them sick.

Now if such a person gets his hands covered with the typhoid bacilli and then handles milk, or works in a grocery store or restaurant handling food, every person who uses that milk or food is likely to receive infection.

Some recent experiments made in the English army show how hard it is to get the hands perfectly clean. This is the experiment:

Dipped the tip of the right index finger in the urine of a typhoid carrier A. (Proved to contain upwards of 3,000,000,000 per cc.) (a) Rinsed in lysol solution (approximately 2 per cent); (b) Then held the finger under the tap, rinsing first in cold, then in very hot water (temperature not recorded). (c) Washed very carefully in about 0.5 cc. of sterile water in a watch glass and plated the whole of the water used for this purpose. Result: Three hundred and thirteen colonies of typhoid bacilli on the plate. (d) After the washing in sterile water mentioned under (c), the tip of the finger was thoroughly soaked in absolute alcohol, allowed to dry, and the washing in sterile water repeated. The washings, were again "plated." Result: Four colonies of typhoid bacilli.

Another experiment was as follows:

Contaminated the tip of the left second finger with urine from Carrier A. (a) Allowed the finger to dry. (b) Washed very thoroughly with soap and water under a running tap. Dried thoroughly with a cloth. "Washed" thoroughly with 0.5 cc. of sterile water in a watch glass and plated the washings. Result: No typhoid bacilli isolated. (c) Finally dipped the finger in lysol solution (2 per cent), scrubbed, dried with a cloth "washed" as before and plated the "washings." Result: No typhoid bacilli.

The first experiment shows that it may be very difficult to free a finger from contamination by typhoid bacilli. The second attempt was successful, possibly owing to the fact that the fingers were thoroughly dried with a cloth, the mechanical friction apparently helping to remove the bacteria. Even if this were the case, it only means that the cloth became infected, and the danger of contaminated fingers remains obvious.

Secretary Richardson of the Massachusetts State Board says: "If a single drop of urine can contain 3,000,000,000 typhoid bacilli, what can we think about a waiter's thumb which gets into our soup, and the none-too-clean fingers of the farmer who milks the cows?"

The practical suggestion from this information is, first, every one should, as far as possible, wash his hands with scrupulous care after any possible contamination with feces or urine, and, secondly, that no one should think of handling food either for his own use, or for others, without carefully washing his hands.—Kansas State Board of Health and Healthy Home.

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## PTOMAIN POISONING.

Will Shimer.

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A ptomain poison is one of the active inanimate septic or toxic substances resulting from processes of decomposition and disintegration of albuminous materials. As ptomains are chiefly developed during putrefaction they have been termed putrefactive alkaloids. The dependence of ptomains upon micro-organisms may be indirect and complicated by or dependent upon purely chemical changes. The kind of ptomain produced depends somewhat upon the stage of putrefaction. Thus we see that ptomain originates as the split products of the albumin molecule in the digestion of proteids. There is nothing specific about ptomain production by bacteria. It is now fairly certain that somewhat similar toxic substances are produced in the intestines of man during proteid digestion.

If typhoid bacilli are grown in ordinary broth two sorts of toxic substances are produced, one which is free in the broth as the result of proteid digestion by the bacteria and

the other in the body of the typhoid bacilli. This last named toxic substance gives rise to typhoid symptoms when taken into the human body.

Bacteriological investigations of many epidemics of ptomain or food poisoning show that they are due to infection with a number of different varieties of bacteria practically all of which belong to the paratyphoid group of organisms.

In a very large percentage of cases the infection originated from eating meat or meat products containing paratyphoid bacilli.

Cholera and typhoid bacilli are bacteria whose characteristics are well fixed in their pathogenity while the paratyphoid bacilli are not and may exist in a somewhat saphrophytic condition outside the body of men and animals. Paratyphoid bacilli are pathogenic for animals as well as human beings and are present as mere saphrophytes in mice, rats, etc.

#### **Varieties of Paratyphoid Fever.**

1. Typical forms resemble typhoid; duration 17 days; mortality 1 to 3 per cent.

2. Gaslroenteric form of cholera nostra. The symptoms are caused by eating food containing large numbers of paratyphoid bacilli and their toxins. The incubation period varies from 2 to 48 hours after eating contaminated food. However, the incubation period is usually from 10 to 18 hours. The mortality is from 3 to 15 per cent.

This latter form of infection is due to eating meat infected with the paratyphoid bacilli which was insufficiently cooked or if well cooked was later infected with these organisms. The infected meat comes from sick animals, e. g. cholera hogs, septicaemia of cattle, naval infection of calves, enteritis of cows and calves, metritis and mastitis of cows, peritonitis, pericarditis, osteomyelitis and suppurative pleuritis of cows, hogs, sheep and often of chickens, ducks, geese, or turkeys.

Diagnosis of meat poisoning is made by bacteriological examinations of stool, blood and urine, or agglutination tests of the blood. If any of the suspected food can be obtained it should be examined bacteriologically for the paratyphoid organisms.



**PREVENTION.** The same measures must be taken with regard to human contact, filtration of water, sanitary disposal of feces and urine and pasteurization of milk as in typhoid. Careful slaughterhouse inspection, antimortem and post-mortem, careful regulation of the preparation of all ground or prepared meats are necessary. Cleanliness must be observed in the preparation of all meats and careful refrigeration must be imposed.

The eating of ground meats or salads containing meat products is a very questionable practice during the summer months.—Monthly Bulletin Indiana State Board of Health.

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### **TYPHOID FEVER INFECTION FROM CONTAMINATED SURFACE WATERS.**

The State Board of Health has reasons for believing that a large proportion of the people who have typhoid fever in the fall of the year apparently get the infection by drinking contaminated surface waters. The reports of field inspections conducted by the Board in various parts of the State point quite definitely to the above conclusion. Numerous farm hands are at work threshing and completing the season's work in places more or less remote from pure water and in consequence they are tempted to drink the water that is most easily obtainable regardless of its purity. More care should be exercised by people employed in the country in this regard. They should heed the precautions found necessary in furnishing armies in the field with safe drinking water. In these cases all surface waters taken below human habitations are looked upon as impure and are not to be used for drinking unless purified by boiling, or by some other process known to be reliable.

The germs that cause typhoid fever have their origin in the intestinal tract of man. Some individuals harbor typhoid germs and these people are called "carriers." The excreta from such persons often infects surface waters when careful methods of sewage disposal are not in use. It is apparent therefore, that a surface water below human habitations cannot be considered a safe drinking water. Consequently all running water in irrigation ditches and in rivers and creeks in inhabited valleys should not be used for drinking without first being purified by boiling or other means.

# LABORATORY REPORT FOR NOVEMBER, 1915.

## Summary of Samples Analyzed.

	Passed	Not Passed	Unofficial	Total
Grape Fruit .....	2	...	...	2
Hamburger .....	3	1	...	4
Weinerwurst .....	...	...	1	1
Denatured Alcohol .....	1	...	...	1
Bologna .....	...	...	1	1
Lime water .....	30	8	...	38
Ferric Chloride .....	6	7	...	13
Tincture of Iodine .....	6	6	...	12
Dilute Hydrochloric Acid .....	1	...	...	1
Waters .....	...	...	...	61
Total .....	49	22	2	134

Sixty-one waters were sent to this laboratory to be examined. These were examined from both the chemical and bacteriological standpoint. The samples were shipped from the following cities and towns: Belgrade, Bozeman, Broadview, Columbia Falls, Columbus, Cut Bank, Glendive, Great Falls, Hamilton, Hedgesville, Ismay, Judith Gap, Lewistown, Livingston, Logan, Mildred, Polson, Rockhill, Three Forks.

Two samples of grape fruit were sent in to be examined. These were both passed.

Four samples of hamburger were examined. Three were passed but one was found to contain a preservative.

One sample of weinerwurst was sent in. Nothing could be done with this sample however, because of the length of time which elapsed between the time of taking and the time it reached the laboratory.

One sample of denatured alcohol was examined. This was passed.

One sample of bologna was sent in. This was classified as "unofficial."

Thirty-eight samples of lime water were examined, thirteen samples of ferric chloride, twelve samples of tincture of iodine, one of dilute hydrochloric.

COMMUNICABLE DISEASES REPORTED TO THE STATE  
BOARD OF HEALTH FOR THE MONTH OF  
OCTOBER, 1915.

Smallpox—Blaine, 6 Cascade (Excl. of Gt. Falls), 1; Chouteau, 4; Hill, 4; Madison, 1; Livingston, 3; Silver Bow (Excl. of Butte), 8\*; Butte, 12; Yellowstone (Excl. of Billings), 1; Billings, 1. Total, 41. Total last month, 26.

Scarlet Fever—Fergus, 4; Bozeman, 1; Madison, 2; Missoula City, 1; Silver Bow (Excl. of Butte), 3; Teton, 1. Total, 12. Total last month, 5.

Typhoid Fever—Blaine, 10; Great Falls, 14; Custer, 4; Chouteau, 1; Dawson, 1; Fergus, 1; Kalispell, 8; Fallon, 2; Bozeman, 4; Hill, 20; Lincoln, 1; Meagher, 3; Mineral, 1; Missoula (Excl. of Missoula City) 1; Missoula City, 2; Prairie, 2; Richland, 1; Rosebud, 1; Butte, 2; Sheridan, 5; Stillwater, 2; Teton, 3; Yellowstone (Excl. of Billings), 5; Billings, 6. Total, 100; Total last month, 92.

Measles—Deer Lodge (Excl. of Anaconda), 3; Anaconda, 13; Flathead (Excl. of Kalispell), 1; Kalispell, 8; Helena, 1; Silver Bow (Excl. of Butte), 1. Total, 27. Total last month, 4.

C. S. Meningitis—Dawson, 1. Total, 1. Total last month, 0.

Tuberculosis—Broadwater, 1; Custer, 3; Livingston, 1; Butte, 14; Yellowstone (Excl. of Billings), 1; Total, 20. Total last month, 16.

Whooping Cough—Great Falls, 1; Teton, 1; Yellowstone (Excl. of Billings), 2. Total, 4. Total last month, 16.

Diphtheria—Helena, 1; Park, 1; Butte, 4. Total, 6; Total last month, 5.

Anterior Poliomyelitis—Fergus, 1; Total, 1. Total last month, 0.

Trachoma—Butte, 1; Total, 1. Total last month, 0.

\*The eight cases of Smallpox reported from Silver Bow county are city cases confined at the pest house.



**BIRTHS (EXCL. OF STILLBIRTHS) REPORTED TO THE STATE BOARD  
OF HEALTH FOR THE MONTH OF OCTOBER, 1915, AND COM-  
PARATIVE BIRTH AND DEATH RECORD IN THE STATE.**

	Males	Females	Totals	Deaths	Excess of Births	Excess of Deaths
Beaverhead	9	4	13	4	9	.....
Big Horn	3	3	6	1	5	.....
Blaine	10	11	21	3	18	.....
Broadwater	1	7	8	5	3	.....
Carbon	17	19	36	4	32	.....
Cascade Excl. of	6	10	16	4	12	.....
Great Falls	33	23	56	19	37	.....
Chouteau	10	12	22	8	14	.....
Custer	16	17	33	9	24	.....
Dawson	15	27	36	9	27	.....
Deer Lodge Excl. of	2	2	2	13	11	.....
Anaconda	8	12	20	11	9	.....
Fallon	3	4	7	2	5	.....
Fergus	25	17	42	15	27	.....
Flathead Excl. of	8	15	23	12	11	.....
Kalispell	3	11	14	5	9	.....
Gallatin Excl. of	11	9	20	10	10	.....
Bozeman	14	8	22	2	20	.....
Granite	2	1	3	1	2	.....
Hill	23	19	42	20	22	.....
Jefferson	6	4	10	1	9	.....
Lewis and Clark Excl. of	3	3	6	.....	6	.....
Helena	14	9	23	15	8	.....
Lincoln	8	6	14	5	9	.....
Madison	6	5	11	6	5	.....
Meagher	11	12	23	9	14	.....
Mineral	1	1	1	1	.....	.....
Missoula Excl. of	4	7	11	4	7	.....
Missoula City	13	6	19	16	3	.....
Musselshell	16	16	32	4	28	.....
Park Excl. of	1	1	2	.....	2	.....
Livingston	6	5	11	5	6	.....
Phillips	8	4	12	1	11	.....
Powell	2	3	5	4	1	.....
Prairie	.....	1	1	1	.....	.....
Ravalli	10	8	18	7	11	.....
Richland	7	3	10	4	6	.....
Rosebud	6	5	11	3	8	.....
Sanders	7	2	9	3	6	.....
Sheridan	45	36	81	5	76	.....
Silver Bow Excl. of	13	12	25	26	1	.....
Butte	53	51	104	74	30	.....
Stillwater	6	7	13	3	10	.....
Sweet Grass	1	5	6	4	2	.....
Teton	13	13	26	8	18	.....
Toole	7	5	12	6	6	.....
Valley	11	10	21	2	19	.....
Wibaux	3	4	7	.....	7	.....
Yellowstone Excl. of	10	13	23	4	19	.....
Billings	15	15	30	10	20	.....
Totals	525	494	1019	390	641	12

Stillbirths ..... 38

**DEATHS (EXCL. OF STILLBIRTHS) REPORTED TO THE STATE BOARD  
OF HEALTH FOR THE MONTH OF OCTOBER, 1915, ARRANGED  
ACCORDING TO COUNTIES AND PRICIPAL CITIES.**

	Totals.....	All Other Causes.....	Alcoholism.....	Suicide.....	Violence.....	Acute Intestinal Diseases..	Malignant Tumors.....	Organic Heart Disease.....	Nephritis.....	Pneumonia.....	Whooping Cough.....	Anterior Poliomylitis.....	Measles.....	Typhoid Fever.....	Scarlet fever.....	Diphtheria.....	Tuberculosis.....	Small Pox.....	Spotted Fever.....
Beaverhead .....	1	4						2	1										
Big Horn .....	1	1																	
Blaine .....	1	3						1	1										
Broadwater .....	1	5						1	1										
Carbon .....	1	4						2	1										
Cascade Excl. of .....	1	4						2	1										
Great Falls .....	1	19						1	1										
Chouteau .....	1	8						2	1										
Custer .....	1	9						2	1										
Dawson .....	1	9						2	1										
Deer Lodge Excl. of .....	1	13						1	1										
Anaconda .....	1	11						1	1										
Fallon .....	1	2						1	1										
Fergus .....	3	15						2	1										
Flathead Excl. of .....	1	12						2	1										
Kalispell .....	1	5						1	1										
Gallatin Excl. of .....	1	10						2	2										
Bozeman .....	1	2						1	1										
Granite .....	1	1						1	1										
Hill .....	4	20						3	3										
Jefferson .....	1	1						1	3										
Lewis and Clark Excl. of .....	1	1						1	3										
Helena .....	1	15						2	2										
Lincoln .....	1	5						2	2										
Madison .....	1	6						2	1										
Meagher .....	1	9						1	1										
Mineral .....	1	1						1	1										
Missoula Excl. of .....	1	4						1	1										
Missoula City .....	1	16						2	1										
Musselshell .....	1	4						1	1										
Park Excl. of .....	1	2						1	1										
Livingston .....	1	5						1	1										
Phillips .....	1	1						1	1										
Powell .....	1	4						2	1										
Prairie .....	1	1						1	1										
Ravalli .....	1	7						2	1										
Richland .....	1	4						1	1										
Rosebud .....	1	3						1	1										
Sanders .....	1	3						3	1										
Sheridan .....	1	3						1	1										
Silver Bow Excl. of .....	5	26						15	1										
Butte .....	4	74						6	3										
Stillwater .....	4	3						1	1										
Sweet Grass .....	1	4						1	1										
Teton .....	1	8						2	1										
Toole .....	1	6						1	1										
Valley .....	1	2						1	1										
Wibaux .....	1	2						1	1										
Yellowstone Excl. of .....	1	4						1	1										
Billings .....	1	10						1	1										
<b>Totals .....</b>	<b>30</b>	<b>390</b>	<b>1</b>	<b>8</b>	<b>7</b>	<b>32</b>	<b>25</b>	<b>39</b>	<b>27</b>	<b>4</b>	<b>48</b>	<b>13</b>	<b>8</b>	<b>148</b>	<b>390</b>				

Estimated population .....	420,000
Monthly death rate per 1,000 population.....	.928
Annual death rate per 1,000 population.....	11.13

COMMUNICABLE DISEASES REPORTED TO THE STATE  
BOARD OF HEALTH FOR THE MONTH OF  
NOVEMBER, 1915.

Smallpox—Beaverhead, 1; Blaine, 2; Carbon, 11; Great Falls, 1; Choteau, 21; Dawson, 5; Madison, 1; Silver Bow, (Excl. of Butte) 2; Butte, 13. Total, 57. Total last month, 41.

Diphtheria—Great Falls, 1; Fallon, 1; Fergus, 1; Sheridan, 1; Butte, 5. Total, 9. Total last month, 6.

Scarlet Fever—Anaconda, 1; Fallon, 1; Fergus, 2; Flathead (Excl. of Kalispell), 2; Hill, 4; Madison, 5; Missoula City, 1; Musselshell, 3; Powell, 1; Richland, 2; Sheridan, 6; Butte, 4; Stillwater, 1; Teton, 1; Yellowstone, (Excl. of Billings), 1; Total, 35. Total last month, 12.

Typhoid Fever—Blaine, 9; Cascade (Excl. of Gt. Falls), 1; Great Falls, 6; Chouteau, 1; Custer, 4; Dawson, 1; Fergus, 2; Flathead (Excl. of Kalispell), 9; Kalispell\*, 4; Gallatin (Excl. of Bozeman), 1; Hill, 7; Powell, 1; Prairie, 2; Teton, 1; Yellowstone (Excl. of Billings), 4; Billings, 5; Total, 58. Total last month, 100.

Measles—Carbon, 1; Great Falls, 2; Anaconda, 16; Flathead (Excl. of Kalispell), 18; Kalispell, 38; Hill, 1; Helena, 2; Meagher, 2; Sheridan, 1; Silver Bow, (Excl. of Butte), 3; Total, 84. Total last month, 27.

Cerebro Spinal Meningitis—None reported. Last month, 1.

Tuberculosis—State Sanatorium, 29; Fergus, 1; Jefferson, 1; Missoula City, 1; Sheridan, 1; Butte, 9; Total, 42. Total last month, 20.

Whooping Cough—Blaine, 1; Broadwater, 9; Custer, 5; Bozeman, 7; Total, 22. Total last month, 4.

Anterior Poliomyelitis—None reported. Last month, 1.

Trachoma—None reported. Last month, 1.

Chickenpox—Choteau, 4; Helena, 3; Sheridan, 2. Total, 9; Total last month, 0.

\*The four cases of typhoid fever reported from the city of Kalispell, were all cases imported from the small towns in Flathead county.



**BIRTHS (EXCL. OF STILLBIRTHS) REPORTED TO THE STATE BOARD  
OF HEALTH FOR THE MONTH OF NOVEMBER, 1915, AND COM-  
PARATIVE BIRTH AND DEATH RECORD IN THE STATE.**

	Males	Females	Totals	Deaths	Excess of Births	Excess of Deaths
Beaverhead	13	6	19	7	12	4
Big Horn	2	2	4	6	3	13
Blaine	10	6	16	3	13	22
Broadwater	3	3	6	3	3	2
Carbon	17	13	30	8	22	48
Cascade Excl. of	5	5	10	3	7	29
Great Falls	36	33	69	21	48	10
Chouteau	16	14	30	1	29	19
Custer	12	7	19	9	10	14
Dawson	21	12	33	14	19	3
Deer Lodge Excl. of	3	1	4	14	10	10
Anaconda	8	11	19	9	10	40
Fallon	26	15	41	1	40	34
Fergus	29	19	48	14	34	10
Flathead Excl. of	16	10	26	16	10	12
Kalispell	5	13	18	6	12	10
Gallatin Excl. of	6	6	12	2	10	15
Bozeman	11	12	23	8	15	3
Granite	4	3	7	4	3	18
Hill	24	17	41	23	18	1
Jefferson	2	4	6	1	5	9
Lewis and Clark Excl. of	6	7	13	9	4	8
Helena	9	12	21	13	8	4
Lincoln	2	5	7	3	4	5
Madison	5	4	9	5	4	13
Meagher	9	4	13	2	11	1
Mineral	1	1	2	1	1	3
Missoula Excl. of	2	1	3	9	6	21
Missoula City	10	17	27	11	16	28
Musselshell	15	13	28	7	21	13
Park Excl. of	6	7	13	2	11	6
Livingston	9	10	19	13	6	10
Phillips	9	1	10	1	9	7
Powell	2	8	10	7	3	12
Prairie	6	6	12	3	9	16
Ravalli	11	5	16	4	12	25
Richland	11	14	25	1	24	15
Rosebud	7	8	15	15	0	7
Sanders	4	3	7	3	4	41
Sheridan	30	11	41	5	36	26
Silver Bow Excl. of	9	17	26	29	3	71
Butte	37	34	71	69	2	11
Stillwater	6	5	11	2	9	12
Sweet Grass	9	3	12	3	9	21
Teton	12	9	21	14	7	8
Toole	6	2	8	3	5	15
Valley	6	15	21	5	16	3
Wibaux	3	3	6	1	5	17
Yellowstone Excl. of	18	17	35	6	29	15
Billings	17	15	32	8	24	1001
<b>Totals</b>	<b>540</b>	<b>461</b>	<b>1001</b>	<b>411</b>	<b>613</b>	<b>23</b>

Stillbirths ..... 57

**DEATHS (EXCL. OF STILLBIRTHS) REPORTED TO THE STAT. BOARD  
OF HEALTH FOR THE MONTH OF NOVEMBER, 1915, ARRANG-  
ED ACCORDING TO COUNTIES AND PRINCIPAL CITIES.**

	Totals	Other Causes	Alcoholism	Suicide	Violence	Acute Intestinal Diseases	Malignant Tumors	Organic Heart Disease	Nephritis	Pneumonia	Whooping Cough	Anterior Poliomylitis	Measles	Typhoid Fever	Scarlet Fever	Diphtheria	Tuberculosis	Small Pox	Spotted Fever
Beaverhead	7	3	1	2	1	1	1	1	1	1									
Big Horn	6	3			1	1	1			1									
Blaine	3	1			1														
Broadwater	3	1								1									
Carbon	8	1			3				1	2							1		
Cascade Excl. of	3	1			1				1	1							1		
Great Falls	21	10		2	2				1	4							1		
Choteau	1																		
Custer	9	2		1													2		
Dawson	14	6		4					1	1							1		
Deer Lodge Excl. of	14	5		2					1								6		
Anaconda	9	4		1													2		
Fallon	14	6		4					1								2		
Fergus	16	4		4													2		
Flathead Excl. of	16	4		4													2		
Kalispell	2	1																	
Gallatin Excl. of	8	3							2										
Bozeman	8	5							1										
Granite	4	3																	
Hill	23	1		2					3	1							4		
Jefferson	1	1																	
Lewis and Clark Excl. of	9	2		1					1	1							1		
Helena	13	6							1	1									
Lincoln	3	1																	
Madison	5	1							1								1		
Meagher	2	2																	
M Mineral																			
Missoula Excl. of	9	2		5															
Missoula City	11	4							2	1									
Musselshell	7	1		2					1										
Park Excl. of	2	1																	
Livingston	13	8		1					2	1									
Phillips	1	1																	
Powell	7	1		1					1	1									
Prairie	3	2																	
Ravalli	4	2																	
Richland	1																		
Rosebud																			
Sanders	3	2							1										
Sheridan	5	2																	
Silver Bow Excl. of	29	6		2					3	5									
Butte	69	20		2					16	4									
Stillwater	2	1																	
Sweet Grass	3	2							1										
Teton	14	5		2					3	2									
Toole	3	1																	
Valley	5								1										
Wibaux	1																		
Yellowstone Excl. of	6	1							2										
Billings	8	2							3										
Totals	411	143	8	9	48	11	22	48	25	148	1	2	5			41			

Estimated population	420 000
Monthly death rate per 1,000 population	5.18
Annual death rate per 1,000 population	11.73



